

## Background Information:

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Hal Evans has some very nice clear diagrams that describe the basic ADF to TAB Channel Link cabling. See for example:

[www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/adf\\_cable\\_diag.gif](http://www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/adf_cable_diag.gif)

[www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/tab\\_cable\\_diag.gif](http://www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/tab_cable_diag.gif)

[www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/amp\\_cable.pdf](http://www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/amp_cable.pdf)

[www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/amp\\_190047.pdf](http://www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/amp_190047.pdf)

[www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/connectors.html](http://www.nevis.columbia.edu/~evans/l1cal/hardware/cabling/connectors.html)

The cable assemblies that have been purchased for connecting the Channel Link signals from the back of the ADF Crate to the back of the TAB Crate are AMP Tyco part number 621410-6.

- The labels on the actual AMP cables that have been purchased for the ADF to TAB connection say: 621410-6 Rev. J 0331 (31 week 2003 ?)
- Note that the AMP 621410-6 cable has 5 columns of pins. The center "C" column is the ground connection for the foil shield over the signal pairs that make up this cable assembly.

The actual net list that describes the "P0" backplane connector on the ADF-2 card (this connector carries the Channel Link signals and the SCLD timing and control signals and has reference designator P3 on the ADF-2 card) is given in:

[www.pa.msu.edu/hep/d0/ftp/run2b/l1cal/hardware/adf\\_2/net\\_lists/vme\\_connector\\_p0\\_nets.txt](http://www.pa.msu.edu/hep/d0/ftp/run2b/l1cal/hardware/adf_2/net_lists/vme_connector_p0_nets.txt)

- The connector used on the ADF-2 card for connection to the front side of the "P0" backplane connector is:  
Harting Part No. 1725-095-2102
- This is a 5 column by 19 row connector that includes an overall metal shield that is grounded on the ADF-2 card and connects

to the column "F" pins on the Wiener backplane "P0" connector.

- I have sent an example of the Harting Part No. 1725-095-2102 connector to Johnny Green a week or two ago.
- The Harting documentation for this connector is on the web at:

[www.pa.msu.edu/hep/d0/ftp/run2b/l1cal/hardware/component\\_information/harting\\_17\\_25\\_095\\_2102.pdf](http://www.pa.msu.edu/hep/d0/ftp/run2b/l1cal/hardware/component_information/harting_17_25_095_2102.pdf)

The layout of the Wiener VME-64X Crate "P0" connector is given on page 15 of their manual for this crate. I did not find this manual on the Wiener web site but Linda has a copy of it.

- I assume that the Wiener VME-64X "P0" backplane connector is the same physical connector as the VIPA crate "P0" connector.
- This connector has 5 columns by 19 rows of "User" signal pins plus it has two outer columns of pins, Z and F, that are tied to grounded in the backplane.
- The layout of Wiener backplane "P0" connector matches what is specified on page 19 chapter 4 of the VME-64 Extended specification book by ANSI/VITA.
- The VME-64 Extended specification describes the "P0" connector as, "For generic uses, the 19 position, Type B, 2 mm hard metric IEC 61076-4-101 fixed board connector shall be used on the VME64x backplanes."
- I believe that an example of the correct "P0" connector to use on the paddle card that plugs into the back of the Wiener backplane is an ERNI 64784. I got this by looking at the "P0" connector that was specified in the parts list for the VTM module which is available on the web at:

[www-ese.fnal.gov/SVX/Production/SVX\\_Web/VTM/VTM.html](http://www-ese.fnal.gov/SVX/Production/SVX_Web/VTM/VTM.html)

The National Semiconductor Channel Link chips that make the high speed serial signals are types: DS90CR483 / DS90CR484.

- The data sheet for this pair is on the web at:

[www.pa.msu.edu/hep/d0/ftp/run2b/l1cal/hardware/component\\_information/national\\_ds90cr48x\\_data\\_sheet.pdf](http://www.pa.msu.edu/hep/d0/ftp/run2b/l1cal/hardware/component_information/national_ds90cr48x_data_sheet.pdf)

- National has an application note with their recommendations about Channel Link connections. This is called, "Channel Link PCB and Interconnect Design In Guidelines", National AN-1108.
- Another nice document from National is their, "LVDS Owners Manual" 2nd edition spring 2000. Chapter 5 is about cables and connectors